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EXAMINER

HOLTON, STEVEN E

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/618,663

Applicant(s)

LIU, HONG-DA

Examiner

Steven E. Holton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “front light module” in claim 23; “static driving circuit” in claim 25; and “active driving circuit” in claim 26 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Fig. 18A, element 521. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities:

Page 8, line 21, the word 'squire' should be 'square'

Page 9, line 9, the word 'whit' should be 'white'

Page 10, line 10, the phrase "a negative and a positive potential voltages" should be rewritten to have agreement between plural and singular references "a positive... voltages" is incorrect.

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Page 10, line 15, the phrase 'three seconds electrode layers' should be 'three second electrode layers'

Page 10, line 18, the word 'display' should be 'displays'

Page 15, lines 16-24 and page 16, lines 1-3, the discussion of Figs. 18B-18D, refers to 'electrode layers (211)' but in the figures has element 520. Either the drawings or specification should be altered so the references agree.

Appropriate correction is required.

### ***Claim Objections***

4. Claims 2, 3, 6, 13, 14, 17, and 19-22 are objected to because of the following informalities:

Claim 2, the phrase "wherein the two opposite substrate (line 2)" should use 'substrates' in place of substrate to agree with plural and singular case. The phrase "to drive the colored charged particles on the first electrodes defined the reflective areas to control... (lines 7-9)" is difficult to understand. Are the particles on the first electrodes or are they driven to or away from the first electrode? "The first electrodes defined the reflective areas to control..." is either missing punctuation or requires more words to clarify how the first electrodes and reflective areas are associated.

Claims 3 and 13, the phrase "the two opposite substrate are named a first substrate and a second substrates" should be edited to agree with plural and singular rules of grammar.

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Claim 3, the phrase "collets the colored charged particles on the transmissive areas to whether the backlight passes through... (lines 8-9)" needs a verb or other correction between 'to' and 'whether' to provide definition to the phrase.

Claim 6, the phrase "transparent electrode as a transmissive area" should be "transparent electrode **has** a transmissive area".

Claim 13, the phrase "inner faces are faced each other" needs a preposition such as 'towards' to provide necessary information.

Claim 14, first line, the phrase "two opposite walls, each is formed on two..." should be similar to "walls, formed on two opposite sides..." This is because the described invention is used with more than only two walls, as the current claim is limited. Further, it would be impossible for a limit of two walls for the whole device to be formed on opposite sides of every second electrode. More than a single pair of walls is needed.

Claim 17, the phrase "are composed of microcapsules each has a transparent capsule..." would be easier to read and understand with some sort of punctuation between microcapsules and each to show that the remainder of the limitation is used to further define the microcapsules.

Claim 19, the phrase "have positively charge or negatively charge" should either be stated as "have positive or negative charge" or "are positively or negatively charged".

Claim 20, the phrase "each first electrode is covered one whole pixel area of the first electrode and each..." is difficult to understand. Is the phrase intended to mean that each first electrode is covered and that the whole pixel area of the first and second

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electrodes has at least two second electrode layers? The limitation needs clarifying punctuation or perhaps a rephrasing of 'each first electrode is covered one whole pixel area of the first electrode' would help to define the meaning of the phrase.

Claim 21, the phrase "each second electrode is covered one whole pixel area of the second substrate" needs either punctuation or rewording to make the phrase more understandable. Perhaps the phrase is meant to state that each second electrode covers one whole pixel area of the second substrate?

Claim 22, as noted above the phrase "backlit module" is objected to because of the definition of the term backlit being a verb. The Examiner recommends changing this term to "backlight module" to reduce confusion.

### ***Double Patenting***

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

5. Claims 12, 17, 18, and 19 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 10, 14, 15, and 16 of copending Application No. 10/618,753. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-3, 10, 11, 13, and 20-26 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 7, 8, 11, and 17-23 of copending Application No. 10/618,753. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to an electrophoretic display with reflective and transmissive capabilities.

The first claims of both applications read on the same invention, but possess some minor differences between them. The first paragraphs of both claims have two differences. The current application states "display, wherein the EPD comprises (lines 1 and 2)" compared to the differently worded '753 application's "display that comprises (line 1)". Also, the current application specifies 'electrodes (line 2)' and the '753 application specifies 'multiple electrodes'. These differences are minor and it is obvious that 'multiple electrodes' and 'electrodes' are plural and the same. Further the method



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step of both claims is slightly different, but obviously not distinct. The current application states "applying positive and negative electric potentials...to collect the colored charged particles...(lines 7 and 8)"; whereas, the '753 application states "applying positive and negative voltages...to drive the colored charged particles...(lines 7 and 8)". Voltages and electric potentials are synonyms for the same aspect of electricity and driving or collecting charged particles is obviously an action of moving the particles to the same areas and the action is the same in both cases.

Regarding claim 13 of the current application and claim 11 of the '753 application, the claims are identical except for the omission of the word 'are' in the '753's claim on line 4. This difference between the claims is minor and the claims are obviously drawn to the same invention.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 10, 21, 23, 25, and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one

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skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 10, the usage of microcapsules in a display system involves using the microcapsules with a display liquid inside of the capsule with charged particles contained within the microcapsules. A standard microcapsule display does not provide the microcapsules within a liquid so that the capsules are moved by electrical charges applied to electrodes, but the capsules are held stationary and applied electrical voltages move the charged particles within the capsules. The disclosure of the current application does not explain how one skilled in the art would modify a standard microcapsule display system so that the microcapsules are contained within a liquid and moved to produce a visual image rather than a standard of stationary microcapsules with contained charged particles within each capsule.

Regarding claim 21, the disclosure shows instances of second electrode layouts in Figs. 2-4, 16C and 16D. None of the discussed systems involve providing the second electrodes such that they entirely cover the whole area of a single pixel. Rather they cover portions of a single pixel. Therefore, the full coverage of a pixel by the second electrode is not enabled by the disclosure of the invention.

Regarding claim 23, the front light module that is mounted on the outer face of the first substrate is not explained in a way for one skilled in the art to make use of the device. Is the light source transparent or opaque? If it were opaque, then a viewer would not be able to see the display. Is the light source separated from the first substrate? If so, is there an optical arrangement to direct light onto the first substrate?

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How far from the first substrate is the light source? What type of light source would be acceptable to provide front light?

Regarding claim 25, the "static driving circuit" is not enabled by the specification. How would the static driving circuit connect with the device? How would it be operated?

Regarding claim 26, the "active driving circuit" is not enabled by the specification. How would the active driving circuit connect with the device? How would it be operated?

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 7 recites the limitation "the transmissive areas that are defined on the first substrate by the first electrodes" in lines 2 and 3. There is insufficient antecedent basis for this limitation in the claim. The preceding claims merely state that transmissive areas are formed on one or both of the substrates, but how they are formed or defined is not described. Therefore, the claims lack antecedent basis for defining transmissive areas defined by the first electrodes.

9. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 15, the claim states, "some electrodes are formed on the corresponding areas". However it fails to define what corresponding areas are being used to define the electrodes. Are they the transmissive areas? Are they the reflective

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areas? Are they areas that are neither transmissive nor reflective? How are the electrodes intended to correspond to the areas?

10. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a display liquid that is used to contain the charged particles. Such a liquid is shown in the prior art of the applicant (Fig. 19, element 90).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 1-3, 8-10, 12-15, 17, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's acknowledged prior art (Fig. 19), hereinafter AAPA, in view of Choi (USPN: 6621541).

Regarding claim 1, AAPA discloses an electrophoretic display device with two substrates (Fig. 19, elements 91 and 92) with charged particles (Fig. 19, element 93) in a fluid (Fig. 19, element 93). Where, as voltages are applied to the electrodes the charged particles move to produce images. However, AAPA does not expressly disclose a substrate with reflective and transmissive areas that allow either front light to be reflected or backlight to be transmitted through a passive display device. Choi

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discloses related art (Fig. 3) that allows a passive display device (liquid crystal display) to be used as both a reflective and transmissive display device. The bottom substrate (Fig. 3, element 18) has electrodes (Fig. 3, elements 2 and 14) that define reflective (Fig. 3, element 2) and transmissive areas (Fig. 3, area A). By providing voltages to either the top electrode of AAPA or different areas of the bottom electrodes discussed by Choi the device could be operated as either a reflective or transmissive display device.

AAPA and Choi are analogous art because both deal with passive and reflective display devices. At the time of invention it would have been obvious to one skilled in the art to utilize the combination backlight and transmissive electrode system discussed by Choi with an electrophoretic display device as discussed by AAPA. The motivation would have been to overcome differences in visibility of the reflective display depending on the ambient light so that viewing was possible in dark and light situations (Choi, col.1 line, 63 – col. 2, line 3). Thus the combination of AAPA and Choi would produce a display that would operate as specified in claim 1.

Regarding claim 2, AAPA operates an electrophoretic display by providing voltages to the front and rear electrodes to direct charged particles to the top or bottom of the display. The Examiner notes that as shown in Fig. 19 the particles could be grouped along the top or bottom electrode based on the applied voltages. Therefore, it would have been obvious to one skilled in the art that the charged particles could be grouped in a manner so that the reflective areas of Choi could provide lighting to the display could reflect front light on the display.

Regarding claim 3, Choi discloses second electrodes (Fig. 3, elements 2 and 14) where by applying voltages to either 2 or 14 the charged particles of AAPA could be directed onto the reflective areas (Fig. 3, element 2) or the transmissive areas (Fig. 3, element 14). AAPA shows the grouping of charged particles in specific locations in Fig. 19 with groups on both the first and second substrates.

Regarding claim 4, Choi discloses second electrodes corresponding to reflective areas (Fig. 3, element 2) and third electrodes corresponding to transparent areas (Fig. 3, element 14). The Examiner notes that it would have been obvious to one skilled in the art that by applying voltages to either the second electrodes or third electrodes would allow the charged particles to be collected to either the second or third electrodes.

Regarding claims 5 and 6, Choi does not expressly disclose that the third electrode (Fig. 3, element 14) is reflective or transparent. Merely that "light generated from the backlight device passes through portions of the pixel electrode corresponding to the transmitting holes "A" (col. 3, lines 24-26)." The Examiner states that it would have been design choice for one skilled in the art to make the remaining portions of the third electrode reflective, transparent, or opaque, because the areas of the third electrode underneath the second electrode (Fig. 3, element 2) are not critical to the operation of the device and could be manufactured with any properties desired.

Regarding claims 10 and 11, the Examiner takes Official Notice that these two types of electrophoretic displays are well-known in the art and it would be design choice of one skilled in the art to use either method of electrophoretic display system.

Regarding claim 12, AAPA discloses an electrophoretic display device with two substrates (Fig. 19, elements 91 and 92) with charged particles (Fig. 19, element 93). Where, as voltages are applied to the electrodes the charged particles move to produce images. However, AAPA does not expressly disclose a substrate with reflective and transmissive areas that allow either front light to be reflected or backlight to be transmitted through a passive display device. Choi discloses related art (Fig. 3) that allows a passive display device (liquid crystal display) to be used as both a reflective and transmissive display device. The bottom substrate (Fig. 3, element 18) has electrodes (Fig. 3, elements 2 and 14) that define reflective (Fig. 3, element 2) and transmissive areas (Fig. 3, area A). Further, Choi discloses some electrodes correspond to transmissive areas (Fig. 3, element 14). By providing voltages to either the top electrode of AAPA or different areas of the bottom electrodes discussed by Choi the device could be operated as either a reflective or transmissive display device.

AAPA and Choi are analogous art because both deal with passive and reflective display devices. At the time of invention it would have been obvious to one skilled in the art to utilize the combination backlight and transmissive electrode system discussed by Choi with an electrophoretic display device as discussed by AAPA. The motivation would have been to overcome differences in visibility of the reflective display depending on the ambient light so that viewing was possible in dark and light situations (Choi, col.1 line, 63 – col. 2, line 3). Thus the combination of AAPA and Choi would produce a display as specified in claim 12.

Regarding claim 13, AAPA does not expressly name the electrodes on one face as a first electrode or second electrode, but Fig. 21, element 91 could be called first electrodes and formed on the inner face of a first substrate, further Fig. 21, element 92 could be named second electrodes formed on the inner face of a second substrate. Choi shows electrodes formed on the inner side of one substrate (Fig. 3, element 18, and forming electrodes on the inside of the other substrate (Fig. 3, element 22) would also be possible.

Regarding claims 17 and 18, the Examiner takes Official Notice that these types of electrophoretic displays are well known in the art and that it would have been obvious for one skilled in the art to utilize either type as the display device of claims 17 and 18.

Regarding claim 20, the Examiner takes Official Notice that it is well known in the art to provide an electrode that is substantially the size of the entire pixel on the topside of the display. The reason for this is so that when moving the charged particles to the top of the display to reflect all light in the pixel the whole pixel is covered with the particles and a minimal amount of the pixel area is not used to reflect the light shown to the display. This allows the pixel to provide maximum brightness when used in reflective mode.

Regarding claim 22, Choi discloses a backlight module (Fig. 3, element 16). The Examiner notes that it would be a design choice to one skilled in the art to mount the backlight module to the substrate or keep the backlight and substrate separate from each other.



Regarding claim 24, the Examiner takes Official Notice that it is well known in the art of display devices to form substrates out of such transparent materials as glass and plastics so that light can be transmitted or reflected from the display device to a viewer.

12. Claims 8, 9, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Choi as applied to claims 3 and 13 above, and further in view of Comiskey et al. (USPN: 6177921), hereinafter Comiskey.

Regarding claim 8, as discussed above the combination of AAPA and Choi disclose all of the limitations of claim 3 that are part of claim 8. However, they do not expressly disclose placing a reflective layer between the second electrodes and the second substrate. Comiskey discloses an electrophoretic display with a reflector (Figs. 2A-2D, element 60) located both above and below electrodes on a substrate (Figs. 2A-2D, the reflector is above and below electrode, element 40).

AAPA, Choi and Comiskey are analogous art because all three deal with passive display devices. At the time of invention it would have been obvious to one skilled in the art that instead of making electrodes reflective such as discussed by Choi (Fig. 3, element 2) all electrodes could be made transmissive and a reflective surface placed beneath the electrodes as shown by Comiskey (Figs. 2C and 2D). This would have been a design choice as shown by the various embodiments of Comiskey in Figs. 2A-2D as being substantially similar in function for the device. Therefore, it would have been obvious to combine the teachings of AAPA, Choi and Comiskey to produce with a method of operation as specified in claim 8.

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Regarding claim 9, Comiskey discusses different types of surfaces for the reflective layer (col. 9, lines 16-19). These surfaces include retroflective, specular, diffuse, and gain reflection properties. Therefore, it would have been obvious to one skilled in the art to form the reflective device in such a manner as to provide different light reflective capabilities. Further to continue to utilize the backlight system of Choi the reflective layer would either be broken into segments with holes for transmission or parts of the reflective layer would be made transmissive so that the backlight would be able to show through the display device.

Regarding claim 16, as discussed above the combination of AAPA and Choi disclose all of the limitations of claim 13 that are part of claim 16. The Examiner notes that the limitations of this claim are the same as the limitations of claim 9. Therefore, the above discussion of claim 9 can be applied to claim 16 as well.

13. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Choi as applied to claim 13 above, and further in view of Ukigaya (USPN: 6873451).

Regarding claim 14, as discussed above, the combination of AAPA and Choi disclose all of the limitations of claim 13 that are part of claim 14. However, they do not expressly disclose walls formed on opposite sides of each second electrode and higher than the second electrode. Ukigaya discloses an electrophoretic display (Fig. 7) with walls (Fig. 34) formed on opposite sides of electrodes (Fig. 7, elements 20 and 22) that are formed on a substrate (Fig. 7, element 10).

AAPA, Choi, and Ukigaya are analogous art because all three deal with passive display systems. At the time of invention it would have been obvious to one skilled in the art to add walls on either side of electrodes on the display device as shown by Ukigaya. The motivation for doing so would have been "to physically prevent particles from drifting into an adjacent pixel (Ukigaya, col. 16, lines 35-40)." Prevention of particles moving from one pixel to another would improve the performance of the display and keep areas of the display from losing their effectiveness from having particles shift to other portions of the display. Thus, it would have been obvious to combine the teachings of AAPA, Choi and Ukigaya to produce a device as specified in claim 14.

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jang et al. (USPN: 6937303) discloses known prior art for providing a transmissive and reflective type liquid crystal display with electrodes providing transmissive and reflective areas. Drzaic et al. (USPgPub: 2002/0180688) discloses an electrophoretic display with embodiments of both backlight and reflective style but does not provide one with a combination of backlight and reflective.

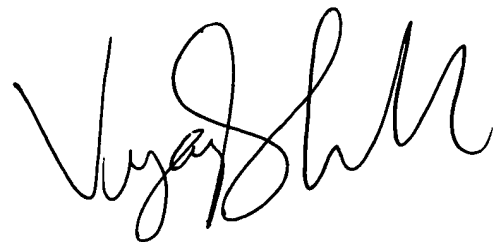
15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven E. Holton  
September 9, 2005  
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A handwritten signature in black ink, appearing to read 'Vijay Shankar', with a stylized, cursive script.

**VIJAY SHANKAR  
PRIMARY EXAMINER**